

## Eltinert F Contact Lubricant

**Product Code: EGF(Grease), EOF(Oil), DOF(Dil Oil)**

### PRODUCT DESCRIPTION

The Eltinert series of high quality Contact Lubricants have been developed to provide protection to electrical contacts under the most difficult conditions. These include extended periods at high temperatures and under corrosive chemical atmospheres. They are also ideal for the protection of noble metals, either in switches or connectors.

The use of an Eltinert lubricant will significantly reduce contact wear, improve signal to noise ratios and generally increase the reliability of any assemblies treated.

Eltinert F fluorinated lubricants have two main areas of application.

- 1) They are excellent contact lubricants - particularly suitable for contacts involving gold and/or aggressive environments e.g., printed circuit edge connectors, plug connectors, rotary and sliding switches.
- 2) They are highly suitable for the lubrication of plastics and rubbers, including those known to be particularly prone to solvent stress cracking e.g., polystyrene, 'Noryl' etc.

These products are the ultimate Contact Lubricants.

### FEATURES

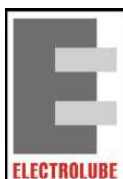
- \* **Excellent electrical characteristics.**  
Low electrical resistance in thin film without affecting the resistance between adjacent conductors or components.
- \* **Excellent oxidation and chemical resistance.**  
Eltinert F does not produce gums or other high insulation resistance residues, even under conditions of frequent high current switching or continued high temperature use. Less than 1% weight loss in 24 hours at 150°C. Suitable for continuous use up to 200°C and for shorter periods up to 300°C (toxic decomposition products first detectable at this temperature).  
  
Eltinert F is unaffected by a very wide range of chemicals including all acids, alkalis, halogens and oxidising agents. It is also resistant to most organic solvents with the exception of certain fluorinated solvents.
- \* **Excellent protective properties.**  
Because of its low volatility and good chemical resistance, even in very thin films (7 microns), Eltinert F provides protection to electrical contacts from environmental attack. Its polar nature ensures good bonding to all metals, including gold. Although gold itself is not subject to environmental attack, gold plate is porous and attack can occur on the substrate metals, e.g. silver, copper or tin. Eltinert F prevents this attack and can allow the use of thinner gold plate.

### TECHNICAL DATA SHEET



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## Eltinert F Contact Lubricants – Page 2

- \* **Excellent non-creep characteristics.**  
Eltinert F does not creep, thus minimising the need for re-lubrication and eliminating contamination of other areas.
- \* **Prevents and cures high contact resistance caused by silicone contamination.**  
The problems caused by glassy deposits on contacts resulting from decomposition of silicones are eliminated by Eltinert F. Although good practice requires the complete absence of silicones from electrical contacts, their presence in domestic polishes and many lubricants and their undesirable creep properties, often makes this impossible. Eltinert F provides an effective barrier to these contaminants.  
  
Contacts already affected by silicone decomposition can be restored and protected by application of diluted Eltinert F.
- \* **Outstanding compatibility with all plastics and rubbers.**  
The following plastics, normally regarded as prone to solvent stress cracking, are unaffected by Eltinert F at 70°C:  
    'Noryl' (PPO/Polystyrene)  
    Polystyrene  
    Impact modified polystyrene  
    ABS  
    Polycarbonate  
  
The following vulcanised rubbers showed minimal change in properties at 70°C:  
    Natural rubber  
    EPDM  
    SBR  
    Butadiene-acrylonitrile  
    Butyl
- \* **Excellent mechanical lubrication.**  
Eltinert F oils are superior to polychlorotrifluoroethylene oils as regards lubricating power measured by the Shell 4 ball wear test.

### Eltinert F Products

#### Eltinert F Oil (Code EOF) Dilute Eltinert 2F Oil ( Code DOF)

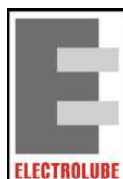
Eltinert F is normally applied as a dilute oil since in most applications only a very thin film is required (< 0.15 mg/cm<sup>2</sup>). However, where a thicker coating is required, Eltinert F oil is recommended, e.g. in certain mechanical applications where an exceptionally long life without re-lubrication is required.  
Dilute Eltinert 2F is available as a 1% solution in non-flammable perfluorocarbon solvent.

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## Eltinert F Contact Lubricants – Page 3

### Eltinert F Grease (Code EGF)

Eltinert F grease is non-melting and will not migrate from vertical contacts or surfaces. It has similar properties to the oil but allows even greater protection from environmental conditions and is also recommended for applications involving heavy arcing.

### TYPICAL PROPERTIES

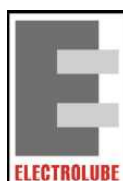
Property	Eltinert F Oil	Eltinert F Grease	Eltinert 2F Oil
Colour	Colourless	White	Colourless
Kinematic Viscosity cSt @ 20°C	1500	N/A	280
Viscosity Index (ASTM D2270/74)	130	N/A	340
Specific Gravity @ 20°C	1.91	1.90	1.85
Pour Point (°C)	-25	N/A	-66
Temperature Range (°C)	-25 to +300	-25 to +300	-66 to +300
Flash Point (°C)	None	None	None
Surface Tension (Dynes/cm)	21	N/A	25
Vapour Pressure (Torr)			
at 20°C	10 <sup>-3</sup>	10 <sup>-8</sup>	2.9 x 10 <sup>-12</sup>
at 250°C	8 x 10 <sup>-2</sup>	8 x 10 <sup>-2</sup>	4.8 x 10 <sup>-6</sup>
Evaporation Weight Loss (%) (ASTM D972/56 22 hrs @ 150°C)	<1	<1	0.1
Copper Strip Corrosion (IP.112/56 @ 150°C)	Nil	Nil	Nil
Dielectric Constant @ 1MHz (ASTM D877/67 @ 250°C)	2.1	2.1	2.1
Electric Strength kV/mm (ASTM D877/67 @ 250°C)	40	40	40
Penetration at 25°C (ASTM D217 worked, 60 strokes)	N/A	265-295	N/A

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### PACKAGING

### ORDER CODE

1 Kg Bulk 10ml syringe	Eltinert F Grease	EGF01K EGF10S
1 Kg Bulk 5ml Pen	Eltinert F Oil	EOF01K EOF05P
1 Litre Bulk (1.7 Kg)	Dilute Eltinert 2F Oil	DOF01L

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